

TEMPERATURE OF WATER.

The following table shows the temperature of the sea-water for September, 1888, as observed at the harbors of the several stations; the monthly range of water temperature; and the mean temperature of the air:

Station.	Temperature at bottom.				Mean temperature of air at the station.
	Max.	Min.	Range.	Monthly mean.	
Canby, Fort, Wash.....	66.0	56.0	10.0	61.7	59.0
Cedar Keys, Fla.....	88.5	71.9	16.4	80.9	75.4
Charleston, S. C.....	83.1	73.8	9.3	80.4	74.0
Eastport, Me.....	51.0	49.7	1.3	50.3	52.8
Galveston, Tex.....	87.0	75.5	11.5	84.8	77.5
Key West, Fla.....	87.0	81.0	6.0	85.0	82.4
New York City.....	69.8	61.6	8.2	67.6	62.9
Pensacola, Fla.....	84.0	70.6	13.4	80.4	74.6
Portland, Me.....	59.9	52.0	7.9	56.0	55.2
Portland, Oregon.....	74.0	64.0	10.0	68.7	65.8

COTTON REGION REPORTS.

In the districts bordering on the lower Mississippi river and the west Gulf coast the rainfall was generally below the September average, the deficiency being greatest in the Galveston district. In the districts of the east Gulf and south Atlantic states the rainfall was in excess by amounts which averaged over ten inches in the Atlanta district. The mean temperature was below the normal in all districts, the departures generally averaging more than 2°. In the districts east of the Missis-

sippi River the minimum temperatures registered on the 30th were the lowest September readings ever reported to this office, the greatest departures below the record of minima being 4°, at Montgomery, Ala.

In the following table the average rainfall and the means of the maximum and minimum temperatures in the cotton regions for September, 1888, are given, together with normals computed from similar observations for the corresponding month of the past six years, and the departures for the current month:

Temperature and rainfall data for the cotton districts, September.

Districts.	Rainfall.			Temperature.						
	Average for Sept. of six preceding years.	Average for Sept., 1888.	Departures.	Maximum.			Minimum.			Extremes for Sept., 1888.
				Mean for Sept. of six preceding years.	Mean for Sept., 1888.	Departures.	Mean for Sept. of six preceding years.	Mean for Sept., 1888.	Departures.	
New Orleans.....	3.24	1.16	-2.08	87.5	86.0	-1.5	66.6	63.9	-2.7	95 44
Savannah.....	3.42	7.60	+4.18	84.3	82.2	-2.4	66.9	66.5	-0.4	97 43
Charleston.....	3.56	7.67	+4.11	84.7	82.2	-2.5	64.4	66.6	+2.2	93 38
Atlanta.....	2.68	12.75	+10.07	83.8	79.1	-4.7	62.9	62.3	-0.6	96 32
Wilmington.....	3.85	9.19	+5.34	82.4	79.6	-2.8	61.7	63.1	+1.4	95 34
Memphis.....	2.48	2.72	+0.24	84.9	79.4	-5.5	61.3	59.8	-1.5	90 36
Galveston.....	4.03	1.54	-2.49	87.8	86.0	-1.8	66.7	65.7	-1.0	99 43
Vicksburg.....	3.55	1.90	-1.65	87.6	84.2	-3.4	65.6	63.4	-2.2	94 44
Montgomery.....	1.93	4.75	+2.82	86.2	81.3	-4.9	64.0	63.6	-0.4	91 42
Augusta.....	2.58	10.05	+9.47	84.9	80.0	-4.9	64.7	63.1	-1.6	91 35
Little Rock.....	2.39	0.83	+1.56	86.4	83.2	-3.2	60.4	62.0	+1.6	97 42
Mobile.....	2.07	3.74	+1.07	88.4	83.5	-4.9	64.3	63.4	-0.9	94 44

PRECIPITATION (expressed in inches and hundredths).

The distribution of rainfall over the United States and Canada as determined from reports of about one thousand stations, is exhibited on chart iv by ruled shading. In the table of miscellaneous meteorological data the total precipitation and the departures from the normal are given for each Signal Service station. The figures opposite the names of geographical districts in the columns for precipitation show the averages for the several districts. Chart v exhibits the normal distribution of September precipitation as determined from the observations of eighteen years, 1871 to 1888.

The heaviest rainfall for September, 1888, occurred in the south Atlantic and east Gulf states. In the upper valley of the Chattahoochee River the excess over the normal amounted to more than eleven inches, while at Lynchburg, Va., there was an excess of more than seven inches. In New England the precipitation was excessive, notably at Wood's Hole, Mass., where the total fall was greater than the average by more than eight inches. In the Lake region west of Lake Ontario, in the Ohio Valley, and all districts lying in and west of the Mississippi Valley, the depth of rainfall reported generally fell below the average for the month, the greatest deficiency occurring in southwestern Missouri where it was more than seven inches. Throughout a great part of the central valleys the deficiencies averaged less than three inches; they were most marked in the central and southern districts where in localities they amounted to more than three, and at one station (Galveston, Tex.) to over four inches. At isolated stations, notably at Charleston, S. C., Hatteras, N. C., and Rochester, N. Y., there were small deficiencies. In the Rocky Mountain regions the total rainfalls were unusually small, the deficiencies being most marked in the northern and southern plateau. On the Pacific coast the precipitation was normal along the southern coast of California; at San Francisco the excess was more than .80 inch, while along the coast of Washington Territory the deficiencies varied from 1.79 inches at Fort Canby and 2.58 inches at Astoria to 3.44 inches at Neah Bay.

DEVIATIONS FROM AVERAGE PRECIPITATION.

The following table shows for certain stations, as reported

by voluntary observers, (1) the average precipitation for a series of years; (2) the length of record during which the observations have been taken, and from which the average has been computed; (3) the total precipitation for September, 1888; (4) the departures of the current month from the average; (5) and the extreme monthly precipitation for September during the periods of observation and the year of occurrence:

State and station.	County.	(1) Average for the month of Sept.	(2) Length of record.	(3) Total for Sept., 1888.	(4) Departure from average.	(5) Extreme monthly precipitation for Sept.			
						Greatest.		Least.	
						Am't.	Year.	Am't.	Year.
Arkansas.	Boone.....	Inches	Years	Inches	Inches	1886	0.46	1888	
Lead Hill.....		4.60	8	0.48	-4.12	8.44			
California.	Sacramento.....	0.15	22	0.51	+0.36	0.90	1883	0.00	*
Sacramento.									
Connecticut.	Hartford.....	2.64	19	7.80	+5.16	10.13	1882	0.38	1881
Southington.....									
Florida.	Brevard.....	8.18	11	8.01	-0.17	23.78	1878	3.01	1882
Merritt's Island.									
Illinois.	Kane.....	2.84	10	1.89	-0.95	.....		
Aurora.....	Golconda.....	4.12	11	0.72	-3.40	.....		
Pope.....	Peoria.....	3.54	33	4.79	+1.25	9.61	1875	0.60	1867
Riley.....	McHenry.....	3.57	27	1.00	-2.57	.....		
Indiana.									
Iowa.	Switzerland.....	3.43	21	4.22	+0.79	6.72	1868	0.47	1871
Cresco.....	Howard.....	4.39	16	0.82	-3.57	.....		
Independence.....	Buchanan.....	5.36	13	1.13	-4.23	12.87	1887	1.13	1888
Monticello.....	Jones.....	4.07	35	1.85	-2.22	10.15	1881	0.00	1871
Kansas.									
Yates Centre.....	Woodson.....	3.91	8	3.91	0.00	8.31	1881	0.44	1883
Maine.	Gardiner.....	3.30	50	7.12	+3.82	8.24	1868	1.00	1846
Maryland.	Kennebog.....								
Cumberland.....	Alleghany.....	2.69	17	2.95	+0.26	8.50	1882	0.40	1873
Falston.....	Harford.....	4.21	18	7.60	+3.48	12.95	1876	0.23	1884
Massachusetts.									
Somerset.....	Bristol.....	2.67	18	2.77	+4.60	.....		
Michigan.	Worcester.....	3.32	50	7.56	+4.24	10.01	1882	0.20	1855
Thornville.....	Lapeer.....	2.91	12	1.52	-1.39	.....		
Kalamazoo.....	Kalamazoo.....	3.37	13	2.40	-0.97	.....		
Adrian.....	Lenawee.....	4.06	11	1.19	-2.87	.....		
New Jersey.									
Moorestown.....	Burlington.....	3.73	25	5.30	+1.57	11.71	1882	0.16	1884
New York.	Oswego.....	3.06	35	4.23	+1.17	7.30	1866	1.04	1880
Palermo.....	Cattaraugus.....	3.77	6	3.55	-0.22	4.82	1884	2.85	1883
Humphrey.....									

Deviations from average precipitation—Continued.

State and station.	County.	(1) Average for the month of Sept.	(2) Length of record.	(3) Total for Sept., 1888.	(4) Departure from average.	(5) Extreme monthly precipitation for Sept.	
						(5) Extreme monthly precipitation for Sept.	
						Greatest.	Least.
						Am't.	Year.
Ohio.		Inches	Years	Inches	Inches	Inches.	
Wauseon	Fulton	2.47	16	0.84	-1.63	5.29	1879 0.55
Oregon.							1871
Albany	Linn	2.16	10	0.64	-1.52	5.61	1884 0.41
Eola	Polk	1.60	18	0.54	-1.06	6.59?	1884 0.00
Pennsylvania.							1873
Dyerberry	Wayne	2.73	19	6.49	+3.76	6.49	1888 1.60
Wellsborough	Tioga	4.18	10	1.75	-2.43	5.86	1882 1.05
South Carolina.							1879
Stateburg	Sumter	3.66	8	5.31	+1.65	6.67	1884 0.75
Kirkwood	Kershaw	3.75	22	6.52	+2.77	8.51	1873 0.80
Tennessee.							1860
Milan	Gibson	2.89	6	0.64	-2.25	4.96	1884 0.64
Texas.							1888
New Ulm	Austin	5.46	17	2.01	-3.45	15.08	1874 0.90
Vermont.							1872
Stratford	Orange	3.57	14	6.10	+2.53	6.30	1882 0.70
Virginia.							1884
Bird's Nest	Northampton	3.24	19	5.50	+2.26	7.70	1876 0.00
West Virginia.							1884
Helvetia	Randolph	3.66	12	2.77	-0.89	.....	.....

•Frequently.

HAIL.

Under the heading "Local storms" will be found descriptions of the more severe hail storms which occurred during the month. In addition to these hail was reported in the various states and territories as follows:

2d, Vt. 3d, Cal. 4th, Ill. 5th, Ariz., N. Y., Wyo. 7th, Kans., Minn. 8th, Mich. 10th, Iowa. 11th, Mo. 12th, Kans., N. J., Pa., Tex. 13th, Pa. 16th, Ill., Ind. 17th, Nev. 18th, Ariz. 20th, Kans., N. Y., Vt. 21st, Ill., Ind., Iowa., Kans., Mo. 22d, Tenn. 26th, Md., Mich. 27th, Mich., N. Y., Ohio. 28th, Ind., Md., Mich., Minn., N. Y., Ohio, Oregon, Pa., Wis. 29th, Mich., N. H., N. J., N. Y., Ohio, Pa. 30th, Md., Mich., N. J., N. Y., Ohio, Pa.

SLEET.

Sleet fell as follows: 13th, Mount Washington, N. H. 27th, Kalamazoo, Mich. 28th, Detroit and Kalamazoo, Mich.; Wauseon, Ohio. 29th, Alpena, Marquette, and Sault de Sainte Marie, Mich.; Erie, Pa.; East Berkshire, Lunenburg, and Northfield, Vt.; Helvetia and Rockport, W. Va. 30th, Corry and Wellsborough, Pa.; Northfield, Vt.

MONTHLY SNOWFALLS (in inches and tenths).

Snow fell in the various states and territories as follows:

Colorado.—Pike's Peak, 5th, 6th, 17th to 19th, 26th, 29th, 30th; total, 1. *Maryland**.—30th. *Michigan**.—27th to 30th. *New Hampshire*.—Mount Washington, 1st, 3d, 14th, 21st to 23d, 26th, 29th, 30th; total, 17.3. *New Jersey** and *New York**.—29th, 30th. *Ohio** and *Pennsylvania**.—28th to 30th. *Vermont*.—Trace, except at Lunenburg, 0.5, 29th, 30th. *Virginia**.—29th. *West Virginia*.—Middlebrook, 2, and Helvetia 0.5 on the 29th.

The only stations reporting unmelted snow on ground at the end of the month were Mount Washington, N. H., 4.7, and Lunenburg, Vt., 0.5 inches.

*Total for the month, trace.

EXCESSIVE PRECIPITATION FOR SEPTEMBER.

For this month rainfalls of ten or more inches have been most frequently reported in or contiguous to the districts of the Atlantic and Gulf coasts and in the upper Mississippi valley. Over a greater part of the Ohio Valley and Tennessee, and in the Lake region, but few instances have been reported wherein the September rainfall has exceeded ten inches, while in the districts west of the ninety-eighth meridian this amount has not been recorded, except in Texas and the northwest portion of Washington Territory. For the east Gulf states a maximum fall of 25.11 inches was reported at Biscayne, Fla., in 1878; in the south Atlantic States, 27.40, Saint Mary's, Ga., 1881; in the middle Atlantic states, 25.98,

Paterson, N. J., 1882; in the west Gulf states, 30.57, Brownsville, Tex., 1879; in the upper Mississippi valley, 18.51, White Earth Reservation, Minn., 1869. The largest excesses in rainfall have been most frequent in the districts in which these stations are located, their occurrence being noted at average intervals of three or four years; at a majority of the places of observation they have occurred less frequently, and at a number of the older established stations rainfalls exceeding ten inches have not been recorded. On the Pacific coast the largest September rainfalls were, 12.15 inches at Neah Bay, Wash., 1885; and 2.91, Red Bluff, Cal., 1885. In the plateau regions, 5.41, at Fort Apache, Ariz., 1881, and 3.15 at Salt Lake City, Utah, 1878. Along the eastern slope of the Rocky Mountains, 2.02 at Cheyenne, Wyo., 1877. As compared with the preceding summer months, the excessive monthly rainfalls of September have been more generally confined to the Atlantic and Gulf States. In the central valleys their occurrence has not, as a rule, been so generally noted in the latter month.

Daily rainfalls of 2.50 inches or more have occurred in September in all districts east of the one hundredth meridian, except in the vicinity of Lake Ontario. Their occurrence has been most frequently reported in the regions in which the monthly rainfalls were most frequent, and the number of instances recorded exceeded in number the monthly excesses. As compared with the preceding summer months, excessive daily rainfalls have occurred at closer intervals at several stations, notably at Galveston and Brownsville, Tex., and at Hatteras, N. C.; at other stations their occurrence has been less frequently noted. The following are some of the heavier daily rainfalls reported: 10.42 inches at Carlowville, Ala., 1877; 13.72, Mayport, Fla., 1885; 10.70, Fort Delaware, Del., 1868; 17.90, Paterson, N. J., 1882; 12.45, Baton Rouge, La., 1877; 11.91, Brownsville, Tex., 1886; 11.87, Mount Angel, Oregon, 1886, and 2.91 at Red Bluff, Cal., in 1885.

While the instances in which one inch or more of rain has fallen in one hour have been less frequently reported than the cases of excessive monthly and daily precipitation, there is little doubt that the downpours of short duration occasion the greatest damage to property and crops. In many instances they occur as veritable cloud-bursts, and the artificial and natural drains in city and country prove inadequate to promptly carry off the enormous quantity of water precipitated during their continuance. September storms of this description have occurred most frequently along the Atlantic coast south of the forty-third parallel; on the Gulf coasts of Florida and Texas, and in the Mississippi and Missouri valleys south of the forty-third parallel, where at a number of stations they have been recorded at intervals of three to four years. In the valleys of the smaller rivers east of the one hundredth meridian, and at three lake stations (Toledo, Grand Haven, and Marquette), excessive hourly rainfalls have been generally noted in but one or two instances, except in the upper valley of the Chattahoochee River and the central valley of the Red River, where they have occurred at closer intervals. No hourly rainfalls exceeding one inch have been reported west of the one hundredth meridian, except in western Nebraska and southeastern Arizona.

The following table shows some of the heaviest rainfalls of short duration reported, and the rate of fall per hour:

Station.	Year.	Date.	Actual fall.	Duration.	Rate per hour.
Alpena, Mich	1884	10	Inches.	h. m.	Inches.
Omaha, Nebr.	1881	28	1.05	0 11	5.73
Charleston, S. C.	1877	13	1.00	0 15	4.00
Cairo, Ill.	1871	13	2.00	0 30	4.00
Cedar Keys, Fla.	1888	2	1.45	0 27	3.22
Rio Grande City, Tex.	1879	26	1.70	0 30	3.40
Fort Riley, Kans.	1870	15	1.93	0 35	3.31
Saint Louis, Mo.	1849	19	1.07	0 20	3.00
Nelson, Tex.	1887	30	3.00	1 00	2.67
New York City	1882	22	4.00	1 30	2.40
Shreveport, La.	1872	24	1.00	0 25	2.12
Fort Apache, Ariz.	1886	8	2.05	0 58	1.81
			1.06	0 55	

Table showing for the month of September monthly rainfalls of 10 inches, or more (in states where monthly rainfalls did not reach 10 inches the station reporting the maximum amount is given); rainfalls of 2.50 inches, or more, in any 24 consecutive hours; and rainfalls equaling or exceeding one inch in one hour.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2-50 inches, or more, in 24 hours.			Rainfall equaling or exceeding one inch per hour.			
	Year.	Amt.	Year.	Day.	Amt.	Year.	Day.	Time.	Amt.
<i>Alabama.</i>									
Carlowville.....	1877	Inches. 12-43	1877	18-20	Inches 10-42				
Citronelle.....			1888	23	3-05				
Green Springs.....	1877	14-11	1877	18-20	8-20				
Livingston.....			1888	7	4-25				
Marion.....			1887	17	3-25	1888	7	4 00	4-25
Do.....			1888	15	3-17				
Mobile.....	1877	12-68	1873	17	5-28				
Do.....	1881	11-71	1875	24	3-02				
Do.....			1875	25	3-11				
Do.....			1877	18	7-00				
Do.....			1881	14	2-97				
Do.....			1881	25	2-74				
Do.....			1881	26	3-27				
Do.....			1885	4	3-23				
Do.....			1887	27	4-57				
Montgomery.....			1872	11	3-09	1888	2	1 30	1-63
Do.....			1875	27	3-34				
Do.....			1882	10	2-67				
Mount Vernon.....			1887	26-27	4-38				
New Market.....			1888	14	4-80	1888	14	2 00	4-80
Opelika.....			1885	20	2-55				
Do.....			1888	2	2-90				
Ronanoke.....	1885	10-00							
Troy.....		10-25	1882	7-9	9-34				
Tuscumbia.....	1882		1886	14	4-71				
<i>Arizona.</i>									
Fort Apache.....	1881	5-41	1881	II-12	2-97	1886	8	0 55	1-66
Fort Grant.....			1887	8-9	3-21	1887	8	0 58	1-28
Fort Huachuca.....			1887	9	2-52				
Fort McDowell.....			1887	30	4-11				
Prescott.....			1887	11	3-14				
<i>Arkansas.</i>									
Arkansas City.....			1885	19	2-90				
Fort Smith.....			1881	28	2-72				
Helena.....			1874	5	3-95				
Do.....			1875	18	2-62				
Do.....			1886	14	3-85				
Lead Hill.....			1886	25	2-68	1884	10	0 50	1-15
Little Rock.....	1886	6-24	1883	30	2-77				
Do.....			1886	13-14	2-51				
Magnolia.....			1886	13	2-50				
Malvern.....			1886	12	3-00				
Do.....			1886	13	2-50				
Mount Ida.....			1877	8-9	4-00				
Newport.....			1884	27	2-62				
Pine Bluff.....			1886	14	5-02				
Prescott.....			1884	29	3-18				
Russellville.....			1886	25	3-00				
Texarkana.....			1884	29	4-65				
<i>California.</i>									
Red Bluff.....	1885	2-91	1885	24	2-91				
Do.....			1885						
<i>Colorado.</i>									
Colorado Springs.....			1874	22-23	2-74				
Pike's Peak.....	1880	3-87							
<i>Connecticut.</i>									
Canton.....		II-25							
Hartford.....			1888	16	2-65				
New Hartford.....			1888	8	2-50				
New Haven.....	1882	13-43	1876	17	2-70				
Do.....			1878	4-5	6-69				
Do.....			1880	29-30	2-80				
Do.....			1882	11-12	4-27				
New London.....			1882	11-12	4-42				
Southington.....	1882	10-13	1888	9	2-50				
Do.....	1882	10-13							
Fort Trumbull.....			1869	26-27	2-96				
<i>Dakota.</i>									
Fort Abercrombie.....			1869	I	3-46				
Do.....			1877	7-8	3-10				
Fort Randall.....			1876	8-9	3-40				
Smithville.....			1881	6	4-08				
Webster.....			1885	12	3-81				
Yankton.....	1881	8-61	1875	29	2-59	1875	2	1 30	1-50
Do.....			1879						
Do.....			1885	II-12	2-53				
Do.....			1881	6	3-45				
<i>Delaware.</i>									
Fort Delaware.....	1868	19-85	1868	3-4	10-70				
Do.....			1868	9	2-60				
Dover.....	1876	12-40	1876	16-17	3-00				
Milford.....	1874	11-05							
<i>District of Columbia.</i>									
Distributing reservoir.....			1888	17	3-07				
Washington City.....	1876	10-81	1874	15-16	5-66				
Do.....			1876	17	3-37				
<i>Florida.</i>									
Alva.....	1888	11-82	1888	8	6-70				
Archer.....	1885	11-62	1885	3	3-31	1885	3	2 00	3-31
Do.....	1888	10-82	1885	26	3-50				
Do.....			1888	8	3-64				
Fort Barrancas.....	1873	11-15	1873	18	5-80	1878	23	0 35	1-64
Do.....	1880	12-80	1880	4	3-15	1878	27	0 45	1-22
Do.....	1884	11-82	1881	14	4-72				
Do.....	1884	10-75	1882	8-9	7-35				

Table showing for the month of September, &c.—Continued

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2-50 inches, or more, in 24 hours.		Rainfall equaling or exceeding one inch per hour.			
	Year.	Amt.	Year.	Day.	Year.	Day.	Time.	Amt.
Florida—Continued.		Inches.		Inches.		h. m.	Inches	
Fort Barrancas.		1884	2	5-33				
Do.		1884	6	3-12				
Biscayne.	1874	16-90						
Do.	1876	14-90						
Do.	1878	25-10						
Cedar Keys.	1888	12-89	1881	15-16	4-81	1880	10 1 00	1-00
Do.			1882	9-10	4-09	1881	16 4 00	4-46
Do.			1885	26	2-83	1888	2 0 30	1-70
Do.			1888	2	2-92			
Daytona.	1878	19-45	1879	26	2-98	1876	27 2 30	3-40
Do.	1879	12-77	1876	27	3-40			
Do.			1880	9	2-98			
Duke.	1888	11-86						
Fernandina.	1885	13-16	1888					
Homeland.								
Jacksonville.	1872	10-79	1874	27-28	2-64	1873	5 0 33	1-50
Do.	1873	10-47	1878	8-9	3-40	1883	17 1 00	1-50
Do.	1876	21-12	1876	10-11	4-29			
Do.	1885	19-63	1878	28-29	2-72			
Do.	1888	11-15	1885	19-20	4-03			
Do.			1885	26-28	10-29			
Do.			1887	17-18	3-88			
Do.			1887	19-20	3-39			
Jupiter.			1888	12-13	3-46			
Key West.	1875	10-67	1875	20-21	3-14	1879	18 1 40	2-50
Do.	1881	10-71	1879	17-18	2-68			
Do.			1887	16-17	3-03			
Limona.	1885	10-64				1883	20 2 00	2-18
Live Oak.	1885	11-18	1885	20	3-66			
Manatee.	1885	13-68						
Do.	1888	10-03	1888	8-9	5-00			
Matanzas.	1888	11-86						
Mayport.	1878	13-28	1885	21	9-52			
Do.	1879	11-51						
Do.	1885	23-24	1885	26-29	13-72			
Fort Mead.			1887	19	2-90			
Merritt's Island.	1878	23-78	1878	8	5-20	1885	20 1 00	1-20
Do.	1879	10-28	1878	9	9-09	1886	3 0 45	1-18
Do.	1885	11-15	1878	10	7-04	1888	1 0 45	1-00
Do.	1887	11-96	1885	26	4-40			
Do.			1887	3	4-95			
Micco.			1888	8	2-50			
Okahumpka.	1879	10-50						
Pensacola.	1880	11-54	1880	8	3-70			
Do.			1880	26	2-73			
Do.			1881	15	5-60			
Do.			1882	9	4-87			
Punta Rassa.	1879	13-78						
Saint Augustine.	1878	11-96	1882	8-9	3-66			
Do.	1885	12-24	1887	19	4-00			
Saint Francis (Barracks).			1878	10	5-60			
Saint Marks.			1879	1	4-08			
Sunford.	1885	10-73	1885	11	2-76			
Tallahassee.			1886	10	3-40			
Do.			1887	28	3-20			
<i>Georgia.</i>								
Albany.			1887	28	2-50			
Do.			1888	9	5-20			
Allapaha.	1888	11-08	1882	9-10	6-95			
Andersonville.			1888	8	2-52			
Athens.	1888	11-25	1882	10	4-40			
Do.			1885	20	2-60			
Do.			1885	21	2-70			
Do.			1888	5	2-72			
Atlanta.	1888	14-26	1886	25	3-17	1888	2 0 48	1-55
Do.			1888	15-16	5-88	1888	4 1 00	1-36
Do.						1888	15 0 45	1-83
Do.						1888	15 0 45	1-21
Augusta.			1874	27-28	3-16			
Do.			1878	11-12	4-37			
Do.			1881	17	2-88			
Do.			1888	9-10	3-61	1871	1 1 00	1-45
Augusta Arsenal.								
Blackshear.	1878	11-90						
Bainbridge.			1887	28	3-00			
Brunswick.	1878	12-04						
Do.	1885	22-08						
Calhoun.			1882	10	2-87			
Carnak.	1888	16-92	1885	21	2-67			
Do.			1888	9	4-50			
Do.			1888	10	3-83			
Cartersville.			1888	6	2-50			
Columbus.	1888	12-00	1887	17	2-52			
Covington.			1882	10	3-30			
Dalton.			1883	22	2-50			
Eastman.			1882	9-10	4-57			
Do.			1888	14	4-00			
Ellerslie.	1885	14-00						
Forsyth.			1888	4	2-50	1884	21 1 00	1-10
Fort Gaines.			1882	10	3-73			
Do.			1887	28	2-00			
Gainesville.	1888	12-61	1887	28	2-60			
Do.			1888	5	4-29	1877	12 0 45	1-62
Griffin.	1885	11-64	1882	10	3-59			
Do.	1888	10-14	1885	20-21	5-80			
Do.			1888	1	3-49			
Jesup.	1885	12-52	1885	27	7-82			
Macon.	1888	10-65	1882	10	6-50			
Do.			1888	9	3-60			
Do.			1888	43	3-00			
Madison.			1882	10	5-34			

MONTHLY WEATHER REVIEW.

SEPTEMBER, 1888.

Table showing for the month of September, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.		Rainfall equaling or exceeding one inch per hour.			
	Year.	Amt.	Year.	Day.	Year.	Dby.	Time.	Amt.
Georgia—Continued.								
Massey Creek.			1887	26	Inches			
McPherson Barracks.			1870	29	3.00			
Do.			1880	24	6.30			
Milledgeville.	1888	11.00	1885	20-21	4.40			
Do.			1888	9	5.50			
Millen.	1888	10.98	1882	7	4.32			
Do.			1888	6	2.70			
Do.			1888	9	3.00			
Newnan.			1882	10	3.04			
Quitman.			1880	1	3.00	1880	1 2 00	3.00
Rabun Gap.	1881	13.65	1887	17	6.20			
Saint Mary's.	1878	10.19				1876	3	1 00
Do.							1.60	
Savannah.	1885	12.00	1874	27-28	3.81	1874	17	1 00
Do.			1888	10.34	11	3.63	1877	14
Do.			1878	14	3.75	1888	18	1 15
Do.			1882	6-7	4.90			1.98
Do.			1884	10	3.16			
Do.			1885	20-21	3.17			
Smithville.			1882	8-10	8.04			
Thomasville.			1878	6	3.04	1878	2	1 00
Do.			1886	10	3.50		1.00	
Do.			1887	28	3.34			
Toccoa.	1888	15.77	1888	16	3.16			
Tybee Island.	1877	11.24	1882	20	2.61			
Union Point.	1888	14.66	1882	10	3.49			
Do.			1888	9	4.40			
Washington.	1888	12.63	1888	9	4.00			
Do.			1878	12-12	1888	10	3.00	
Walthourville.	1885	12.70						
Do.			1885	29	3.80			
Way Cross.	1885	16.13	1886	11	3.10			
West Point.			1882	10	3.43			
Do.			1885	20	4.70			
Waynesborough.			1884	11	2.65			
Idaho.								
Boise City.	1884	2.11						
Illinois.								
Abingdon.			1875	9	4.00			
Do.			1876	5	4.30			
Anna.			1877	1	2.62			
Augusta.	1876	10.67	1875	9	4.82			
Do.			1876	7-8	3.48			
Beardstown.			1885	13	3.00			
Cairo.			1884	29	2.90	1871	13	0 27
Do.						1886	9	1 25
Do.						1872	28	0 55
Chicago.			1875	8-9	3.44			
Decatur.			1886	16	2.80			
Geneseo.			1874	18	3.50			
Do.			1875	8	3.00			
Havana.			1875	9	3.05			
Louisville.			1880	19	3.20			
Lyndon.			1874	18-19	3.50	1866	4	2 15
Do.			1875	8-9	2.50			
Marengo.			1866	4	2.76	1860	5	2 00
Martinsville.			1886	27-28	5.25			
Mount Carmel.			1885	29	4.43			
Mount Sterling.						1886	1	0 30
Pana.			1886	16	4.50			
Peoria.			1888	21	3.10			
Rockford.			1874	19	2.55			
Rock Island.			1874	18	4.00			
Sandwich.			1875	8-9	2.85			
Do.			1886	19	2.84			
Springfield.			1881	30	2.74	1886	16	1 42
Do.			1884	26-27	3.88			
Do.			1886	16	3.25			
Wyanet.			1875	8-9	3.00			
Do.			1875	15	3.00			
Indiana.								
Fort Wayne.			1877	9-10	3.50			
Do.			1879	2-3	4.10			
Do.			1885	12	2.50			
Indianapolis.			1879	2-3	3.47			
Logansport.			1885	13	3.18			
Marengo.	1884	10.80						
Do.	1885	10.20						
New Corydon.			1885	14	3.36			
Saint Meinrad's Abbey.			1879	2-3	4.25			
Do.			1881	14-15	3.80			
Vevay.						1883	23	1 30
Indiana Territory.							2 25	
Fort Gibson.	1873	7.28	1887	22	2.76			
Do.			1881	30	2.50			
Fort Sill.			1870	7	3.74	1886	26	0 50
Iowa.							1 11	
Afton.			1875	1	2.50			
Do.			1875	2	2.60			
Do.			1876	5	2.80			
Albion.			1880	25	3.00			
Do.			1879	11	2.50			
Amana.			1879	11	2.75	1881	26	2 00
Do.			1880	25-26	4.52			
Ames.			1881	29	2.72	1875	8	1 00
Boonesborough.			1876	4-5	2.50			
Brookville.	1876	10.56						
Byron Township.	1875	11.00	1874	13-14	2.80			
Do.			1875	2	3.50			

Table showing for the month of September, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.		Rainfall equalling or exceeding one inch per hour.		States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.		Rainfall equalling or exceeding one inch per hour.	
	Year.	Amt.	Year.	Day.	Year.	Day.		Year.	Amt.	Year.	Day.	Year.	Day.
Iowa—Continued.							Iowa—Continued.						
Byron township.							Byron township.	1875	6-7	3.00			
Do.							Do.	1875	8-9	2.50			
Corydon.							Do.	1878	19-20	2.50			
Cresco.			1881	10-03			Cresco.	1874	18-19	4.49	1881	3	1 15
Davenport.							Davenport.	1887	2-3	2.86	1887	3	1 45
Denison.							Denison.	1875	2	4.87			
Des Moines.							Des Moines.	1874	18				
Do.							Do.	1881	1	2.55			
Dubuque.			1881	10-26			Dubuque.	1881	7-8	2.68			
Do.							Do.	1875	8-9	4.95	1881	9	1 00
Dubuque.							Dubuque.	1875	5	3.40			
Do.							Do.	1878	19-20	2.66			
Do.							Do.	1880	25-26	3.79			
Do.							Do.	1881	26-27	4.42			
Do.							Do.	1881	29-30	2.75			
Fort Madison.							Fort Madison.	1874	18				
Granville.			1881	12-31			Granville.						
Guttenburg.							Guttenburg.	1876	5	3.49			
Hamlin.							Hamlin.	1879	11	2.73			
Independence.			1881	10-20			Independence.	1886	26-27	3.11			
Keokuk.			1876	11-08			Keokuk.	1874	18	2.86			
Do.							Do.	1875	25	3.22			
Keokuk.							Do.	1876	5	3.42			
Do.							Do.	1876	7	4.89			
Saint Claire.							Saint Claire.	1874	19	2.77			
Logan.							Logan.	1884	23	2.70			
Monticello.			1881	10-15			Monticello.	1881	25	5.00			
Do.							Do.	1874	18	4.00			
Mount Vernon.			1881	14-40			Mount Vernon.	1880	25	8.22			
Nashua.			1887	10-15			Nashua.	1880	25-26	3.18			
Newton.							Newton.	1881	13-05	4.00			
Nor Springs.							Nor Springs.	1881	11-01	4.00			
Osage.							Osage.	1887	4-5	5.70	1884	26	1 00
Sac City.							Sac City.	1887	21	2.75			
Smith													

Table showing for the month of September, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.		Rainfall equaling or exceeding one inch per hour.		Year.	Amt.	Year.	Day.	Amt.	Year.	Day.	Time.	Amt.
	Year.	Amt.	Inches	Day.	Amt.	h. m.									
Louisiana—Continued.															
Baton Rouge	1877	18.42	1877	10	4.65										
Do.			1877	17-19	12.45										
Coushatta			1886	13	3.05										
Grand Coteau	1885	10.58	1887	26-27	3.00										
Do.			1885	3	2.50										
Do.			1885	15	2.75										
Lafayette			1886	27	2.50										
Liberty Hill			1887	27	3.20										
New Orleans	1877	13.21	1875	9	2.50										
Do.	1885	13.55	1877	17-18	7.22										
Do.			1885	20	2.78										
Do.			1885	25-26	3.23										
Do.			1887	26	2.88										
Port Eads			1881	26	4.19										
Do.			1882	8-9	5.90										
Shreveport	1880	11.61	1875	17	7.00	1872	24	0 58	2.05						
Do.			1877	3	6.87	1874	7	1 00	1.15						
Do.			1880	12	2.84										
Do.			1881	14	4.06										
Do.			1885	5	2.86										
Do.			1886	13	2.73										
Maine.															
Dexter			1882	24	2.60										
Fort Preble			1882	5	2.90										
Portland	1882	7.58	1882	24	2.66										
Maryland.															
Baltimore	1876	10.52	1874	16	3.15										
Do.			1876	17	3.94										
Emory Grove			1878	4	3.00										
Fallston	1876	12.95	1888	17	3.00										
Do.			1876	17	3.14										
Fort Foote			1874	15-16	4.12										
Jewell.			1888	16	3.75	1888	16	3 15	3.75						
Fort McHenry			1876	16-17	2.05										
Do.			1877	8	3.20										
Mount Saint Mary's College.	1876	11.00	1876	16-17	3.10										
New Market.	1876	10.64	1874	15-16	6.00										
Saint Inigoes			1876	16-17	3.20										
Woodstock College.			1874	10	2.70										
Do.															
Massachusetts.															
Amherst a.	1882	11.85	1888	20-21	3.75										
Do.			1888	8	2.77										
Amherst b.	1888	11.82	1888	20-21	3.17										
Blue Hill Observatory			1888	26	3.84										
Boston	1882	10.93	1882	22-23	3.55										
Combridge			1888	26	2.82										
Cotuit.			1888	26	4.73										
Charleston.			1882	11-12	3.99										
Chicopee.	1888	10.94													
Pearlfield.			1888	18	2.90										
Fall River.			1888	26	2.70										
Fitchburg c.	1868	14.04													
Fitchburg d.	1888	10.86	1882	23	3.24										
Fort Warren.			1888	10-42											
Groton.			1888	10-57											
Leominster.			1888	10-35											
Long Plain.			1888	10-70											
Mendon.			1882	10-05	1888	26	3.70								
Milton.			1888	10-18											
Mount Nonoluck.															
Nantucket.															
New Bedford.			1888	11-56	1881	2-3									
Newburyport.															
Northampton.	1888	13.43													
Provincetown.															
Plymouth.															
Salem.															
Somerset.															
South Lee.	1882	10.08													
Springfield.	1882	12.73													
Springfield Armory.	1882	11.40													
Thatcher's Island.			1880	10	2.78										
Taunton.			1888	26	4.33										
Vineyard Haven.	1888	11.39	1888	25-26	6.00	1888	26	1 00	2.00						
Westborough.			1882	11-12	3.15										
Woods Hole.	1888	11.27	1888	26	6.55										
Worcester.			1882	22	3.49										
Michigan.	1882	10.01	1888	21	2.63										
Adrian.			1881	23-24	2.50	1884	10	0 11	1.05						
Alpena.			1886	8-9	2.75										
Detroit.			1873	2-3	3.33										
Escanaba.			1884	23-24	2.81										
Fort Brady.			1881	26-27	2.83										
Grand Haven.			1882	14	3.28										
Grand Haven.			1872	22-23	3.85	1875	11	0 58	1.10						
Harrisville.			1874	4-5	2.69	1880	2	1 00	1.02						
Kalamazoo.			1881	17	2.70										
Grand Rapids.			1885	8-9	2.77										
Hartford.			1875	8	2.59										
Litchfield.			1889	2-3	2.70										
Marquette.	1881	12.71	1881	29-30	4-44	1881	29	1 00	1.00						

Table showing for the month of September, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.		Rainfall equaling or exceeding one inch per hour.		Year.	Amt.	Year.	Day.	Amt.	Year.	Day.	Time.	Amt.
	Year.	Amt.	Inches	Day.	Amt.	h. m.									
Michigan—Continued.															
Niles.							1879	26-27	3-10						
Minnesota.															
Beaver Bay.			1869	10.70			1884	23	2.66						
Chester.			1886	11-52	1										

Table showing for the month of September, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.		Rainfall equaling or exceeding one inch per hour.		
	Year.	Amt.	Year.	Day.	Year.	Day.	Time.
New Hampshire—Continued.							
Dunbarton	1868	16.40					
Grafton	1882	10.70	1882	23-24	2.60		
Rauover			1869	10	4.68		
Mount Washington	1873	13.66	1880	15	7.41		
Do.	1875	11.34	1882	14-15	5.08		
Do.	1876	14.89					
Do.	1880	15.23					
Do.	1882	13.32					
Wolborough			1882	24	2.60		
Mine Falls	1888	10.13					
New Jersey.							
Atlantic City			1882	10-11	3.21		
Do.			1883	11-12	3.85		
Acto.	1882	13.65	1882	11-12	4.98		
Barnegat City	1882	14.65	1882	11-12	9.52		
Bordentown	1882	13.15	1883	22-23	7.35		
Do.			1887		2.65		
Cape May			1877	7-8	4.71		
Do.			1882	11	4.85		
Clayton			1887	11-12	4.23		
Freedhold	1882	11.61	1882	22-23	6.05		
Do.			1888	8-9	3.11		
Gillette			1888	10-34			
Harrisville			1887	12	2.70		
Highland Park			1888	8-9	3.63		
Hopewell			1888	9-10	3.10		
Imlayshtown			1887	12	2.60		
Do.			1888	9-10	2.85		
Lambertville	1850	12.10	1847	24-25	3.53	1865	13 100
Do.			1850	2	8.00		
Do.			1860	20	4.48		
Do.			1862	12	3.22		
Do.			1888	8-9	2.59		
Little Egg Harbor			1882	11-12	4.07		
Do.			1887	12	3.95		
Moorestown	1882	11.71	1883	22-23	6.96		
New Brunswick			1888	8-9	3.42		
Do.			1888	8-9	2.98		
Ocean City			1888	10-11	2.50		
Ocenic	1888	10.65	1888	9	4.50		
Paterson	1882	25.98	1882	21-22	17.90		
Pequannock	1882	12.89	1882	21-24	9.94		
Plainfield			1888	11-12	3.10		
Readington	1882	12.30	1882	21-23	9.00		
Salem			1887	11	2.90		
Sandy Hook	1874	11.30	1882	11-12	4.77		
Do.	1882	11.48	1882	21-22	4.37		
Somerville	1882	11.05	1882	22-23	7.69		
South Orange	1882	14.45	1882	23	7.50		
Trenton			1888	8	2.69		
Vineland	1882	12.35	1882	10-12	6.05		
New Mexico.							
Silver City			1880	21	2.80		
Lava	1886	5.67					
New York.							
Ardenia			1888	16-17	4.27		
Albany			1882	22-23	4.16		
Boy'd's Corners	1888	10.77	1888	7-8	3.45		
Do.			1888	17-18	4.96		
Cooper Union			1874	17	5.10		
Do.			1876	17	2.80		
Flushing	1882	11.71	1882	23-24	5.27		
Fort Columbus	1882	15.43					
Fort Niagara							
Moriches			1880	9	2.61		
New York City	1882	14.51	1874	17-18	3.95	1878	5 100
Do.			1876	17	2.63	1882	11 100
Do.			1882	11-12	3.32	1882	22 0 25
West Point	1882	13.90	1882	21-22	5.84	1882	1 100
Do.			1888	17-18	3.84		
White Plains			1882	23	3.35		
Southeast Reservoir							
North Carolina.							
Ashville			1888	11-14	3.07		
Attaway Hill	1874	10.19	1874	28-29	6.05		
Cape Lookout			1876	20-21	3.18		
Do.			1877	27-29	8.96		
Charlotte			1877	10-32	5.06		
Do.			1882	11-12	3.64		
Elsworth			1884	11-12	6.56		
Do.			1885	21-22	2.86		
Fayetteville			1888	9-10	3.41		
Do.			1880	1	5.00		
Do.			1881	14	6.00		
Do.			1881	15-16	13.00		
Do.			1878	11-12	4.00		
Do.			1876	15	3.00		
Do.			1876	16-17	4.00		
Do.			1876	16	3.00		
Do.			1881	14	2.68		
Do.			1884	12-13	5.51		
Do.			1885	21	6.02		
Franklin							
Goldborough			1881	11.35			
Do.			1876	12.62	1875	10	2.50
Do.			1877	16.70	1883	11	3.47
Do.			1883	10.39	1888	9	2.50
Do.			1888	13.10			
Greenville			1877	16.46	1877	27-29	8.30
Hatteras			1876	11.69	1874	16	5.40
Do.			1877	15.41	1876	3-67	1875

Table showing for the month of September, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.		Rainfall equaling or exceeding one inch per hour.		
	Year.	Amt.	Year.	Day.	Year.	Day.	Time.
North Carolina—Continued.							
Hatteras	1879	Inches. 11.64	1877	20	3-10	1888	15 o 37
Do.			1877	28	5.87		
Do.			1879	21	5.25		
Do.			1882	27-28	2.60		
Do.			1883	10	3.50		
Do.			1883	11	2.83		
Do.			1885	21	5.60		
Do.			1886	7-8	2.59		
Highlands			1880	12-66			
Do.			1881	13.49			
Kitty Hawk			1876	13-79	1877	20	2.65
Do.			1877	13-39	1877	28-29	7.25
Do.			1882	26	3.40		
Do.			1885	21-22	4.60		
Lenoir			1888	10-80	1878	11-12	7.10
Lumberton			1883	12-50	1883	11	6.20
New Berne			1888	11-76	1884	12	3.06
Do.			1888	6	2.54		
New River Inlet			1883	10-11	1884	11-13	8.42
Do.			1885	21-22	5.29		
Oxford			1874	28	4.50		
Portsmouth			1877	12-74	1880	9	3.40
Do.			1883	11-24	1884	12	7.00
Raleigh			1888	10-88	1886	9	2.56
Do.			1888	14-63	1883	10-11	6.82
Scott's Hill			1883	11-87	1883	19	3.96
Southport			1877	10-11	1885	21	6.51
Do.			1888	19	7		
Statesville			1888	13-64	1887	29	3.65
Do.			1888	9-10	1888	9-16	5.27
Weldon			1888	10-56	1881	9	3.07
Do.			1883	11-56	1883	11	4.18
Do.			1883	12	3.00		
Wilmington			1877	20-10	1872	13	4.12
Do.			1883	10-53	1873	23	2.67
Do.			1874	14	3.61		
Do.			1874	15	3.75		
Do.			1876	16	3.97		
Do.			1877	1	4.99		
Do.			1877	27	5.64		
Do.			1878	11	3.99		
Do.			1879	20	3.00		
Do.			1880	10	7.30		
Do.			1883	14	4.88		
Do.			1884	12	6.77		
Do.			1885	21	4.77		
Ohio.							
Bellefontaine			1876	1	3.30		
Camp Dennison			1864	3-4	4.80		
Cleveland	1878	9-30	1877	1	2.73		
Do.			1878	12-13	3.63		
Do.			1878	12-13	4.44		
College Hill			1888	15-16	3.75		
Haverly			1886	23	3.25		
Hudson			1878	11-13	5.85		
Marietta			1884	27-28	5.40		
North Lewisburg			1886	23	2.60		
Do.			1886	24	3.30		
Do.			1887	8	2.70		
Portsmouth			1839				

Table showing for the month of September, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.		Rainfall equaling or exceeding one inch per hour.			
	Year.	Amt.	Year.	Day.	Year.	Day.	Time.	Amt.
Pennsylvania—Continued.			Inches.		Inches.			
Freeport			1888	26	3-32			
Germantown			1887	12	2-70			
Gerardville			1888	8	2-55			
Hamilton			1888	12	3-50			
Lensdale			1888	18	2-92			
New Castle	1878	10.00	1878	13	5-00			
Ottsville			1888	18	3-18			
Philadelphia	1882	12.09	1876	16-17	3-48	1882	21	0 25 1.20
Do.			1882	22	4-65	1888	21	1 00 1.35
Do.			1882	23	3-72			
Pittsburg			1887	11	2-63			
Do.			1876	17-18	4-08			
Quakertown			1878	12-13	3-88			
Seisholtzville			1888	17	2-72			
Smith's Court			1888	18	3-13			
Tarentum	1876	12.00	1876	17-18	6-00			
Wellsborough	1876	12.33	1887	12	2-60	1886	20	0 50 1.02
Do.			1876	23-24	4-75			
West Chester			1882	22-23	4-50			
Do.			1887	11-12	2-86			
Salem Corners			1888	12	3-50			
Rhode Island.								
Newport	1882	6.57	1882	11	2-87			
South Carolina.								
Abbeville	1888	13.66	1888	10	7-40			
Aiken			1881	16	2-60			
Allendale	1888	10.44						
Batesburg	1888	10.44	1884	11	2-88			
Do.			1885	21	3-37			
Blackville			1884	11	3-37			
Do.			1886	15	2-55			
Brewer's Mines	1888	13.48						
Cedar Springs	1888	11.60						
Charleston	1876	11.26	1873	19	2-66	1877	13	0 30 2.00
Do.	1884	11.03	1874	28	3-89	1882	22	0 55 1.00
Do.			1877	13	3-00			
Do.			1878	11-12	4-26			
Do.			1879	20-21	3-87			
Do.			1884	9-10	2-68			
Do.			1884	11-12	5-44			
Clinton	1888	16.26						
Columbia			1873	18-19	4-75			
Evergreen	1888	10.50						
Florence			1884	11	3-58			
Greenville			1888	10	2-60			
Greenwood	1888	17.90	1888	9	3-35			
Do.			1888	10	8-35			
Hardeeville			1884	6	2-70			
Hilton Head			1864	20-21	4-15			
Jacksonborough	1888	11.83	1885	9	4-05			
Kingstree			1884	12	3-83			
Marion	1888	11.29						
Newberry	1888	17.90						
Saint Mathew's			1882	4	3-38			
Do.			1874	14-15	2-52			
Spartanburg	1888	20.44	1864	20-21	9-40			
Do.			1874	27-28	2-90			
Do.			1888	10	3-00			
Do.			1888	7	3-55			
Do.			1888	17	4-00			
Do.			1888	10	2-50			
Statesburg			1883	14	3-52	1886	14	1 05 1.10
Do.			1884	10-11	6-40			
Windsor	1888	11.49						
Winnsborough	1888	13.23						
Tennessee.								
Ashwood			1879	1-2	4-00			
Chattanooga			1885	20-21	2-58			
Do.			1887	27-28	2-96			
Fostoria			1885	20	2-70			
Do.			1887	27	4-00			
Grand Junction			1885	28	2-80			
Grief			1885	20	2-70			
Hohenwald			1885	29	2-53			
Knoxville	1877	7.38	1875	18	3-15	1871	15	0 40 1.00
Do.			1877	10-11	2-65	1873	3	0 55 1.26
Do.			1888	15-16	2-59			
Memphis			1871	13-14	2-88	1886	27	1 00 1.17
Nashville			1881	14-15	2-79	1887	22	1 05 1.19
Do.			1877	17	2-93			
Do.			1879	1	2-65			
Do.			1881	15	4-21			
Do.			1884	29	2-88			
Do.			1885	29-30	3-01			
Paris			1887	17-18	3-85			
Do.			1886	23	2-80			
Riddleton			1888	7	3-67			
Texas.								
Austin	1874	13.84	1866	9-10	2-90			
Do.	1886	12.83	1873	12-13	6-45			
Do.			1874	5-7	8-40			
Do.			1874	7-8	2-90			
Do.			1885	16	3-53			
Do.			1886	12	5-67			
Belton			1886	13	2-70			
Bluff Settlement	1874	17.20	1884	25	3-05			
Brackettville			1874	5-6	6-50	1874	19	2 00 2.00
Brenham			1881	25	4-75			
			1886	29	2-52			
			1886	24	3-47			

Table showing for the month of September, &c.—Continued

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2-50 inches, or more, in 24 hours.		Rainfall equaling or exceeding one inch per hour.	
	Year.	Amt.	Year.	Day.	Year.	Day.
Texas—Continued.			Inches.		Inches	
Brownsville.	1879	11.64	1876	19-20	2.77	1878
Do.	1886	30.57	1879	13-14	2.76	1887
Do.	1887	13.65	1879	24	3.90	1888
Do.			1883	3-4	5.75	
Do.			1884	20-21	3.02	
Do.			1886	21-22	11.91	
Do.			1887	21	8.54	
Do.			1888	23	2.90	
Clarksville.	1874	10.00	1874	9	3.25	1874
Do.			1874	24	4.00	1874
Do.						1875
Cedar Hill.			1888	18	3.00	1888
Columbia.	1886	15.86	1885	19	3.04	
Do.			1884	28	3.85	
Do.			1886	23	2.80	
Do.			1886	24	3.09	
Do.			1887	27	2.85	
Columbus.	1873	16.20				1873
Corpus Christi.			1887	24	3.95	1888
Do.			1888	23	2.82	1888
Do.				20-21	2.99	
Corsicana.			1887	26	3.03	
Cuero.			1886	13	3.55	
Decatur.			1881	30	4.44	
Denison.			1880	20	3.59	
Do.			1880	26	2.52	
Eagle Pass.			1880	13	3.50	
Do.			1881	11	2.87	
Fort Brown.	1869	10.50	1869	22	4.70	
Do.			1873	8-10	8.80	
Do.	1874	15.35	1873	13-14	5.92	
Do.			1874		3-5	
Do.			1884	20-21	2.70	
Fort Clark.	1874	11.06	1860	14	3.00	
Fort Concho.			1880	20	3.50	
Do.			1882	4-5	3.05	
Fort Elliott.						1882
Fort Davis.						1880
Do.						1880
Fort Griffin.			1877	3-4	2.51	
Do.			1881	13	2.76	
Fort McKavitt.	1874	10.97	1874	6-7	5.38	
Do.			1874	22-23	3.70	
Do.			1876	9-10	2.52	
Do.			1877	4-5	3.31	
Do.			1882	4-5	6.56	
Fort Stockton.	1880	13.30	1882	13	4.32	
Do.			1883	13	7.91	
Do.				17-19		
Fredericksburg.	1880	12.25	1880	15	2.62	
Do.			1880	22	3-13	
Galveston.	1875	18.41	1873	13	3.27	1871
Do.	1877	13.85	1875	15-16	6.57	1875
Do.			1880	16-17	3.99	
Do.			1885	24-25	0.50	
Do.	1886	13.31	1876	23-24	2.83	
Do.			1877	6	4.83	
Do.			1877	16-17	6.07	
Do.			1880	3-4	3.03	
Do.			1884	27-28	3.02	
Do.			1885	3-4	7.09	
Do.			1885	15-16	3.79	
Do.			1885	18-19	4.66	
Do.			1885	19-20	4.34	
Do.			1886	13-14	2.89	
Do.			1888	22-23	2.59	
Hearne.			1885	17	4.50	
Do.			1886	13	4.00	
Do.			1888	22-23	2.59	
Houston.	1886	12.83	1886	24	4.90	
Do.	1884	10.02	1883	7	5.10	
Do.			1884	25	3.25	
Indiana.	1874	12.89	1879	11	3.79	1880
Do.	1875	10.65	1882	6	4.05	
Do.			1885	4	3.16	
Do.				27-28	6.98	
Jacksonborough.	1880	13.95	1880	20	3.00	1880
Do.			1880	21	3.17	
Do.			1881	30	3.27	
Luling.			1882	7	2.64	
Do.			1893	20	4.00	
Do.			1886	14	3.00	
Mason.	1880	10.39	1881	30	3.31	
Mesquite.						1874
Do.						1875
Melissa.			1877	2-4	3.00	
Nelson.			1881	30	4.00	1881
New Ulm.	1874	15.08	1874	10	3.31	1874
Do.			1875	25	2.88	
Do.			1883	20	3.29	
Palestine.			1886	23-24	4.44	
Paris.			1886	28	2.80	
Presidio.			1882	4-5	2.68	
Pilot Point.			1877	5	3.87	
Do.			1880	20	5.29	
Rio Grande City.			1879	25-26	2.97	1879
Do.			1879	26-27	2.86	1884
Do.			1881	7-8	2.90	1888
Do.			1883	7	2.51	
Do.			1884	10	5.04	
Do.			1886	21-22	2.73	

Table showing for the month of September, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2-50 inches, or more, in 24 hours.		Rainfall equaling or exceeding one inch per hour.		Year.	Amt.	
	Year.	Amt.	Year.	Day.	Amt.	Year.	Day.	Time.	Amt.
<i>Texas—Continued.</i>									
Rio Grande City.....		Inches.	1887	21-22	2-55	.....	.....	h. m.	Inches
San Antonio.....			1881	11	3-09	.....	.....
Do.....			1882	6	6-20	.....	.....
Sour Lake.....			1882	15-16	6-10	.....	.....
Do.....			1886	24	2-70	.....	.....
Waco.....			1886	13	3-10	.....	.....
Longview.....			1885	9	3-94	.....	.....
<i>Utah.</i>									
Salt Lake City.....	1878	3-15	.....	.....	.....	.....	.....
<i>Vermont.</i>									
Brattleborough.....	1888	10.56	1888	18	2-51	.....	.....
Charlotte.....			1885	10	2-50	.....	.....
Manchester.....			1888	20-21	2-57	.....	.....
Stratford.....			1881	2-3	2-50	1874	24	1 00	2.00
Do.....						1874	16	1 00	1.10
Vernon.....	1888	10.94	.....	.....	.....	.....	.....
<i>Virginia.</i>									
Accotink.....			1877	12	2-50	.....	.....
Bruington.....			1886	9-10	3-50	.....	.....
Cape Henry.....	1876	14.90	1887	29	2-60	.....	.....
Do.....	1877	10.04	.....	.....	.....	.....	.....
Capeville.....	1876	10.70	1876	16-17	6-00	.....	.....
Dale Enterprise.....	1882	12.24	.....	.....	.....	.....	.....
Lynchburg.....	1888	10.58	1871	15	3-42	.....	.....
Mount Solon.....			1878	10-11	3-10	.....	.....
Norfolk.....	1877	11.90	1873	9-10	3-12	1877	31	1 00	1.00
Do.....			1876	15-16	3-22	.....	.....

Table showing for the month of September, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2-50 inches, or more, in 24 hours.		Rainfall equaling or exceeding one inch per hour.		Year.	Amt.	
	Year.	Amt.	Year.	Day.	Amt.	Year.	Day.	Time.	Amt.
<i>Virginia—Continued.</i>									
Norfolk.....		Inches.	1882	25-26	4-22	.....	.....
Do.....			1883	10-11	2-66	.....	.....
Do.....			1885	21-22	2-78	.....	.....
University of Virginia.....	1888	13.10	.....	.....	.....	.....	.....
Woodlawn.....			1877	11-12	3-50	.....	.....
Wytheville.....			1878	12	7-02	.....	.....
<i>Washington.</i>									
Neah Bay.....	1885	12.15	.....	.....	.....	.....	.....
<i>West Virginia.</i>									
Wellsville.....			1883	20	4-50	1883	20	2 15	4-50
Wheeling.....			1886	28	2-75	.....	.....
Morgantown.....	1882	7.23	.....	.....	.....	.....	.....
<i>Wisconsin.</i>									
Beloit.....			1875	8-9	6.10	.....	.....
Do.....			1880	18-19	2-82	.....	.....
Bloomfield.....			1875	8-9	4-85	.....	.....
Embarrows.....	1881	11.60	.....	.....	.....	.....	.....
Green Bay.....			1888	16-17	3-98	.....	.....
La Crosse.....	1881	10.87	1875	31	2-74	.....	.....
Do.....	1884	10.01	1876	9	2-82	.....	.....
Do.....			1884	6	5-60	.....	.....
Lincoln.....			1888	16	4-00	.....	.....
Milwaukee.....			1872	22-23	3-74	.....	.....
Neillsville.....	1881	14.01	1880	18	3-90	.....	.....
Do.....			1881	29	3-70	.....	.....
<i>Wyoming.</i>									
Fort Fetterman.....	1881	4.20	.....	.....	.....	5	2-60	.....	.....

WINDS.

The prevailing winds for September, 1888, are shown on chart ii by arrows flying with the wind. Along the Atlantic coast south of New England, and in the Gulf states and lower and middle Mississippi valleys, northerly winds were most frequently noted; along the Saint Lawrence Valley and over the Lake region they were mostly westerly; in the Missouri Valley, northwest; in the Rocky Mountain regions, variable; and along the Pacific coast, north to west.

HIGH WINDS.

No velocities of fifty miles or more per hour have been reported, other than those given in the table of miscellaneous meteorological data, except at Mount Washington, N. H., 80, sw., 8th, and 86, sw., 13th.

LOCAL STORMS.

The severe storms in the south Atlantic and east Gulf states during the first decade of the month, and the heavy gales along the middle Atlantic and New England coasts on the 25th and 26th, attended the passage of barometric depressions described in this REVIEW. The following reports refer to storms of a more local character:

8th. Illinois.—Quincy: a severe rain and wind storm in the evening did much damage. Houses were unroofed and trees damaged. The storm lasted about ten minutes and was unusually destructive.

10th. Virginia.—Norfolk: a destructive wind and rain storm swept over parts of Nansemond, Isle of Wight, and Southampton counties this morning, destroying trees and crops and demolishing buildings.

14-15th. Maryland.—Westport, Prince George Co.: this section was visited in the afternoon by a cyclonic storm about one-fourth of a mile in width which caused much damage.

14-15th. California.—San Francisco: heavy showers of rain, accompanied by thunder and lightning, prevailed.

15th. South Carolina.—Tumbling Shoals, Laurens Co.: a tornado swept over this place at 6 p. m., doing much damage to trees. Toney Creek, Anderson Co.: about 5 p. m. a tornado passed across Saluda River one mile south of this place, unroofing houses.

16th. District of Columbia.—Washington City: the thunder-storm which occurred in the afternoon was accompanied by high wind and excessive rain; 1.23 inches of rain fell in twenty-

five minutes; several houses in the southern portion of the city were unroofed or otherwise damaged. **New Jersey.**—Harrison, Gloucester Co.: a storm visited this place between 7 and 8 p. m., doing much damage to houses, crops, and stock.

17th. Delaware.—Viola, Kent Co.: a destructive storm passed over this county from southwest to northeast; it lasted only about two minutes, but did considerable damage.

20th. Kansas.—Dodge City: occasional flashes of lightning were observed at sunset; at 8.05 p. m. the wind backed from northeast to northwest and for twelve minutes blew at the rate of forty miles an hour; hail of unusual size fell from 8.15 to 8.40 p. m., causing much damage; the storm ended at 9.10 p. m. **Virginia.**—Lynchburg: a storm passed over Orange county, destroying houses, trees, and stock.

21st. South Carolina.—Tabernacle, Marion Co.: a tornado passed over this place at 6.30 p. m., velocity of wind sixty-five miles an hour from the east; storm lasted from three to five minutes; width of track about three hundred yards. **Texas.**—Mammoth Springs, Fulton Co.: a tornado passed over this place to-day; seven houses were wrecked; trees and crops badly damaged, and several people were injured.

26th. Heavy gales and rain storms prevailed over New England, more especially along the coast, where considerable damage was done to shipping and property.

Destructive hail storms were reported as follows:

7th. Minnesota.—Saint Paul: during a thunder-storm in the afternoon hail of unusual size fell to a depth of one-half inch.

12th. New York.—Nyack: a severe hail storm occurred in the interior of Rockland county at night; hail-stones the size of walnuts fell. **Pennsylvania.**—Johnstown, Cambridge Co.: a severe thunder and hail storm occurred in the evening; hail fell in large quantities and was very destructive to window-glass, grapes, and late vegetables; in protected places it remained on the ground twenty-four hours. Several buildings were struck by lightning. **Washington, Washington Co.**: a destructive hail storm occurred at 6 p. m.

20th. Kansas.—Dodge City: hail of unusual size fell from 8.15 to 8.40 p. m. during a thunder storm.

27th. New York.—Eden Centre: a very severe hail storm, accompanied by thunder and lightning, passed over this place from the southwest. The stones were about the size of chestnuts; the storm lasted one hour.